

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
25 October 2001 (25.10.2001)

PCT

(10) International Publication Number  
**WO 01/78687 A1**

(51) International Patent Classification<sup>7</sup>: **A61K 9/22**

Yoosung-gu, Taejon 305-345 (KR). **CHANG, Seung-Gu** [KR/KR]; 211-1603, Expo apt., Jeonmin-dong, Yoosung-gu, Taejon 305-390 (KR).

(21) International Application Number: PCT/KR01/00462

(22) International Filing Date: 22 March 2001 (22.03.2001)

(74) Agents: **YIM, Suk-Jae** et al.; 8th Floor, Poonglim Building., 823-1, Yeoksam-dong, Kangnam-gu, Seoul 135-784 (KR).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

2000/20484 18 April 2000 (18.04.2000) KR  
2000/49344 24 August 2000 (24.08.2000) KR

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(71) Applicant (*for all designated States except US*): **PEPTRON INC.** [KR/KR]; #8105 BMRC, KAIST, Kusung-dong, Yoosung-gu, Taejon 305-701 (KR).

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **LEE, Hee-Yong** [KR/KR]; 303-1006, Buyeong apt., Yeongdeung-dong, Iksan-shi 570-979 (KR). **LEE, Hye-Suk** [KR/KR]; 105-903, Buyeong apt., Eoyang-dong, Iksan-shi 105-903 (KR). **KIM, Jung-Soo** [KR/KR]; 1042-14, Jinbuk2-dong, Deokjin-gu, Jeonju-shi 561-160 (KR). **KIM, Sang-Beom** [KR/KR]; 668-8, Kyeongam-dong, Kunsan-shi 573-861 (KR). **LEE, Ji-Suk** [KR/KR]; 103-308 Jugong apt., Sanbuk-dong, Kunsan-shi 573-500 (KR). **CHOI, Ho-Il** [KR/KR]; 108-901, Hanwool apt., Sinsung-dong,

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INJECTABLE SUSTAINED RELEASE PHARMACEUTICAL COMPOSITION AND PROCESSES FOR PREPARING THE SAME

(57) Abstract: The present invention relates to controlled and sustained release pharmaceutical composition and processes for preparing the same. The present invention is to provide processes to prepare an injectable sustained release pharmaceutical composition comprising a step to prepare biodegradable porous microspheres having accessible ionic functional groups, a step to incorporate a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a solution containing the biopharmaceutical and a step to recover and freeze-dry the biopharmaceutical-incorporated microspheres.

WO 01/78687 A1

20011025 04361001